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AUTHOR Will, Jerrie Ann; And Others
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ABSTRACT

This study examines the influence of maternal predispositions toward sex-appropriate behavior and the mother's response to "feminine" or "masculine" cues in infant behavior. In the investigation, one 6-month-old male infant was presented to 11 mothers who served as subjects. The infant was dressed as either boy (blue clothes) and named Adam, or dressed in a pink dress and named Beth. The two theories tested were: (1) if mothers react only to the infants' cues, their behavior with the child should not differ significantly; and (2) if mothers act on the basis of preconceptions, differential treatment of "Beth" and "Adam" would be expected. The mothers were observed and tape recorded while playing with the child and interviewed after the play period. The results indicated that mothers do behave differently toward infants on the basis of the infant's perceived sex in the areas of toy choice and social stimulation. They do not, however, report consistent observed differences in the behavior of boys and girls at 6 months of age. Also, mothers do not seem to be aware of their differential treatment of male and female infants. (SDH)

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MATERNAL BEHAVIOR AND SEX OF INFANT

Jerrie Ann Will, Patricia Self, and Nancy Datan

West Virginia University

Previous research on sex differences dealt mainly with older children (e.g., Kagan & Moss, 1962). For example, rough play is tolerated and encouraged more for boys, while girls are often reprimanded for similar behavior (Sears, Maccoby, & Levin, 1957). Research with older children does not answer the question of the respective influences of mother and infant on early socialization.

Studies dealing with infants, while not numerous, have found sex differences in mother-child interactions (Sears, et al., 1957; Moss, 1967; Thoman, Leiderman, & Olson, 1972). Mothers tend to pick up girls more often when they cry. From three to twelve weeks, male infants are more often held, stimulated, and aroused by their mothers. Mothers also smile at, talk to, and imitate the vocalizations of female infants more often.

These studies, since they deal with the natural mother-child dyad, do not permit differentiation between the effects of maternal predispositions and the infants' cues. In an area such as sex-typing, this reciprocal influence masks the process of channeling males and females into their appropriate roles. Does the mother respond to some "masculine" or

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"feminine" cues in the infant's behavior, or does she impose a set of behavioral expectations on the in ant, regardless of the cues presented? The present research considers the respective influence of the mother's predispositions and the infant's cues by presenting one infant, dressed either as a boy or girl. If mothers react to the infant's cues, their behavior should not significantly differ, regardless of the external clothing cues. If mothers act on the basis of preconceptions, differential treatment of the infant would be expected.

METHOD

Subjects

The Ss were 11 mothers who had children of both sexes; they were experienced in handling both boys and girls throughout infancy. Each mother's youngest child was less than 2½ years old. The sex of the youngest child was distributed evenly throughout the two experimental groups, insofar as possible.

Experimental setting

The Ss were tested in a room containing two chairs and a table. Three toys were conveniently placed on the table: a fish, a doll, and a train. All toys were similar in size and were made of soft plastic. A tape recorder was placed out of S's range of vision; all mother and infant vocalizations were recorded. The S sat facing a one-way mirror approximately 8 feet away. One 6-month-old male infant was used

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in all sessions. Five of the mothers saw the baby dressed in blue pants and were told that his name was Adam. Six of the mothers saw the infant in a pink dress; the infant was introduced as Beth.

Procedure

The Ss were contacted initially by telephone and informed that the study concerned child-rearing practices. When S arrived at the experimental setting, the experimenter (E) was sitting with the infant. The following instructions were read to each S:

> I'm not going to stay in the room and take notes while you play with Beth/Adam, because I don't want to disturb you and the baby. So I'll be recording what you say with this tape recorder, and I'll be watching through this window. I've just changed her/his diaper, and she's/he's been fed. There are several toys on the table. So you go ahead and play with Beth/Adam, and I'll be back in a little less than ten minutes.

The E then placed the infant in S's lap and left S alone with the infant. After eight minutes, E returned and interviewed S.

Observations

The authors devised a rating sheet encompassing two major categories of maternal behaviors: (a) toy handling and (b) auditory, visual, and tactile stimulation. Toy handling was subdivided into three categories according to the assumed sex-appropriateness of the toys. These included a doll (female-preferred), a train (male-preferred), and a fish (neutral). Auditory stimulation consisted of vocalizations and visual stimulation consisted of smiling. Tactile stimulation

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encompassed three behaviors: (a) stimulating the infant's face, (b) stimulating the infant's body in general, and (c) holding the infant away.

Three measures of infant behavior were also recorded: (a) crying vocalizations, (b) non-crying vocalizations, and (c) smiling. These measures made possible the assessment of correlations between infant behaviors and maternal behaviors as a function of the perceived sex of the infant.

Two raters, one of whom was not aware of the true sex of the infant, observed all mother-infant interactions through the one-way mirror throughout a series of 10-second intervals. At the sound of a tape-recorded signal, they noted all behaviors which had occurred throughout that interval. The raters were allotted 2.5 seconds to record theor observations; thus the observations were continuous for ten of every 12.5 seconds. The mean interrater reliability for all sessions was 89%. Reliability was calculated by summing the number of agreements divided by the number of agreements plus disagreements for each 10-second block. The tape recorder was used to measure the frequency of mother and infant vocalizations.

RESULTS

Observational data

A separate multivariate analysis of variance was used for each of the two categories: toy handling and stimulation. The overall multivariate test for toy handling was significant,

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according to Roy's Maximum Root Criterion (F=6.60, df=1/9, $p < .05$). Thus, mothers differed in their toy presentation according to the perceived sex of the infant. The univariate tests showed that frequency of doll handling reached significance at the .06 level (F=4.45, df=1/9).

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Insert Table 1 about here

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Mothers presented the doll more often to the infant they perceived as a female. A trend existed toward more train handling with the male infant, but the F test was not significant. There were no differences in handling of the fish.

The overall multivariate test for stimulation was also significant, according to Roy's Criterion (F=5.40, df=1/9, $p < .05$). Although none of the univariate Ftests reached significance, smiling revealed trends in the expected direction. Mothers tended to smile more at the "female" infant. There were no apparent sex differences in frequency of vocalizations, touching the infant's face, touching the infant's body, or holding the infant away.

Product-moment correlations were calculated for all variables primarily to determine the relationships between infant behaviors and maternal behaviors. Although none of the behaviors varied systematically according to the perceived

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sex of the infant, crying was significantly correlated with stimulating the infant's body in general (r= +.75, p .008). Also, noncrying vocalizations correlated significantly with stimulating the infant's face (r= +.74, p .008).

Interview data

The Ss were first asked if they could tell that Beth was a girl or that Adam was a boy, irrespective of dress. Four of the six mothers reported that they couldn't tell that Beth was female. The other two mothers said that they knew that Beth was a girl--one said she was "sweet," and girls were sweeter; the other said she showed "softer crying," a feminine trait. This was particularly surprising, since Beth was really a boy. Apparently, mothers react at least in part on the basis of external cues, which influence their perception of the infant. Four of the five mothers could not tell that Adam was a boy; one reported that she knew because he had "a little boy's face." After being debriefed, all mothers were very surprised to find that the female infant was actually a male.

Even though the mothers behaved differently toward "Beth" and "Adam," they unanimously stated that there was no difference in the way six-month infants ought to act. When asked about differences in general in the behavior of girls and boys of that age, 5 of the 11 mothers reported that they perceived no differences. Furthermore, the answers

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of the 6 mothers who did report differences showed no similarity. Thus, there were no consistent reports of sex differences in the behavior of 6-month infants.

A large majority of the mothers reported that they encouraged rough play with their daughters (9 of 11) and doll playing with their sons (10 of 11). There were no sex differences in the mothers' reports of picking up their children when they cried, of types of games introduced, or of differences in independent, aggressive, and energetic behavior in their children at the age of six months.

DISCUSSION AND CONCLUSIONS

The results indicate that mothers do behave differently toward infants on the basis of their perceived sex. Mothers more frequently hand the doll to the female and the train to the male. Mothers also tend to smile more when they believe they are handling a female. Thus, mothers have begun to channel children into appropriate sex roles by the age of six months. Girls are subject to more social stimulation. Also, mothers have begun to encourage sex-appropriate patterns of play.

It appears that the mother's expectations influence her behavior; mothers seem to respond on the basis of their own predispositions, rather than the infant's cues. The infant emitted essentially the same behaviors for all mothers, yet their treatment of him systematically differed depending

on whether he was perceived as male or female. The mothers imposed their own expectations on the infant and treated him accordingly. Some mothers even perceived feminine characteristics in his appearance and behavior which accorded with their expectations.

Mothers do not report consistent, systematic differences in the behavior of boys and girls at six months of age. A majority of mothers reported observing no differences at all. Among the mothers who did report differences, the singularity of each answer indicates that the idiosyncratic experience of the mothers may lead them to see individual differences as sex differences.

Finally, mothers do not seem to be aware of their differential treatment of boys and girls. The mothers' verbal reports and their observed behavior differed markedly. Mothers reported that their sons were encouraged to play with dolls, yet in the experimental setting they handed the doll much more frequently to the "female" infant. In general, mothers maintained that they treated infants similarly without regard to their sex; however, their behavior was observed to differ systematically as a function of the infant's perceived sex. Thus, while mothers behave differently toward male and female infants, they do not recognize these differences.

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Table 1

Toy Presentation and Maternal Stimulation as related to Perceived Sex of Infant

Variable	Mean number of occurrences	
	"Female" n=6	"Male" n=5
Toy presentation		
Doll	9.33	3.00
Train	8.17	12.40
Fish	3.50	3.40
Stimulation		
Vocalizations	30.67	31.40
Smiling	15.83	9.80
Touching infant's face	1.17	0.60
Touching infant's body in general	8.00	6.00
Holding infant away	0.83	1.40